heat of the day. For many years it met a great and crying want. It cannot be charged with having failed in its duty. It may point in honest pride to the teachers who have occupied its chairs, to the many men of eminence in science, in literature, and in various professions, especially those of Medicine and Law, who have been trained within its walls. It is a standing monument of the munificence of a past generation; it has, indeed, received, within the last few years, more than one liberal bequest, but these are not applicable to the present, most urgent, need; so that, unless further aid be given, its usefulness must be diminished.

WESTERN CHINA.

Three Years in Western China: a Narrative of Three Journeys in Szechuan, Kweichow, and Yunnan. By Alexander Hosie, M.A., F.R.G.S., H.B.M.'s Consular Service, China. With an Introduction by Mr. Archibald Little. (London: George Philip and Son, 1890.)

IN the year 1876 certain serious disputes between Great Britain and China were brought to an end by an agreement known, from the place at which it was negotiated and signed, as the Chefoo Convention. One of the provisions of this famous instrument was that the British Government might send officers to reside at Chungking, on the Yangtsze, in Szechuan province, in order to study the conditions of British trade in that region. Beginning with 1877, a succession of junior officers of the British Consular Service in China have been stationed at Chungking, and from this great commercial mart as a centre have travelled far and wide in parts of China hitherto wholly, or almost wholly, unknown to the West. The late Mr. Colborne Baber was the first of these, and his travels are recorded in the special volume of the Royal Geographical Society, "Travels and Researches in Western China," which the late Colonel Yule described as "that admirable and delightful narrative which the periodical press has allowed to pass almost absolutely unnoticed—taking it, I suppose, for a Blue-book, because it is blue!" The reports of these officers have from time to time been laid before Parliament, and are amongst the most interesting publications ever issued in this way. Not long ago a report from Mr. Bourne, Mr. Hosie's successor, recorded a journey from Chungking across Yunnan to the frontier of Tonquin, along that frontier towards the sea, and then back again across Kweichow province to Chungking; but this, though full of interesting and important information relating to the country, the people, and especially to the trade between Tonquin and Southern China, remains more or less inaccessible in its present shape. Mr. Hosie has followed Mr. Baber's example, and has prepared for popular perusal an account of his journeyings. He is fortunate in the time and circumstances of the publication, for, by a recent agreement between the British and Chinese Governments, the town of Chungking is to be opened, under certain conditions, to the trade and residence of British merchants. The book contains an introduction by Mr. Archibald Little, whose name has for some years been associated with efforts to navigate the upper waters of the Yangtsze, and to throw Chungking open to foreign trade.

Mr. Hosie's journeys carried him in various directions, and had various objects in view; but, naturally, he avoided as far as possible the footsteps of his predecessors. His first journey, which lasted for nearly ten weeks, took him southward from Chungking into the mountainous province of Kweichow, where he came across the aboriginal Miao-tsze, now almost extinct, to Kwei-yang-fu, the capital, whence he turned westward to Yunnan-fu, the capital of the province of the same name, and so by the mountains of North-Eastern Yunnan home to Chungking. On this journey, besides the Miao-tsze he first saw the white-wax insect, about which he has much to say later on. The second journey lasted nearly six months, and carried the traveller through a more interesting and less-known region. From Chunking he travelled to the north-west across the great plain of Cheng-tu, noted for its extraordinary fertility, the density of its population, and the wealth of its inhabitants. From another point of view, also, it is notable as the only large area of level ground in all Western China; it is a plateau about 7000 feet above the level of the sea, at the foot of the mountains of Tibet, and has an area of about 2400 miles. Richthofen says of it that there are few regions in China, equal areas compared, which can rival it in wealth and prosperity, density of population and productive power, fertility of climate and perfection of natural irrigation; and there is no other where, at the present time, refinement and civilization are so generally diffused among the population. From the city of Cheng-tu, the administrative capital of Szechuan, Mr. Hosie turned to the south-west through the districts inhabited by the Lolos, an aboriginal tribe, discovered practically by the French Expedition under De Lagrée and Garnier, and further investigated by Mr. Baber and Prof. de Lacouperie. Thence he passed into the famous valley of the Chien-chang, and to the city of the same name, the Caindu of Marco Polo, which is the centre of the insect white-wax trade, and following the track of the great Venetian arrived at Tali-fu in Yunnan, the Carajan of Marco. The brine industry which the old traveller found flourishing—it was here that cakes of salt were used as currency—still exists. From this city, Mr. Hosie, passing through Yunnan-fu and by the valley of the Chi-hsing River, reached Chungking.

Mr. Hosie's third journey was in one sense the most interesting of all, for, although the country traversed was not all new, the object was to study carefully, for the authorities at Kew, the Chinese insect wax industry. He decided for this purpose to visit the centre of the wax culture of the province, to ascend by the way the sacred Mount Omei, from whose summit the glory of Buddha is said to be visible, and then to strike the Yangtsze at its highest navigable point. The mountain, which is about 11,000 feet high, has been devoted to the worship of Buddha almost since the beginning of our era, and is sufficiently remarkable from a physical point of view. Mr. Hosie devotes a special chapter to the white-wax insect, and the industry associated with it, in which he traces the career of the *Coccus pe-la* of Westwood from its cradle, through its busy and interesting life, to its dishonoured grave. It is only in quite recent years, and mainly through Mr. Hosie's journey, that the mystery surrounding the industry has been cleared up. The subject was frequently referred to in older works in China, and the chief object of Mr. Hosie's journey was to procure for Sir Joseph Hooker specimens of the foliage, of the flowers, and trees, on which the insects are propagated, specimens of the living incrusted white-wax, samples of the latter as it appears in commerce, and Chinese candles made from it. The Chien-chang valley already alluded to, which is about 5000 feet above the level of the sea, is the great breeding-ground of the white-wax insect. One very prominent tree there is known to the Chinese as the insect tree. It is an evergreen with the leaves springing in pairs from the branches, very thick, dark green, glossy, ovate, and pointed. In May and June the tree bears clusters of white flowers, which are succeeded by fruit of a dark purple colour. The Kew authorities have come to the conclusion that it is *Ligustrum lucidum*, or large-leaved privet. In March, when Mr. Hosie saw the trees, he found attached to the bark of the boughs and twigs numerous brown pea-shaped excrescences. The larger of these were readily detachable, and, when opened, presented either a whity-brown pulpy mass, or a crowd of minute animals like flour, whose movements were just perceptible to the naked eye. From two to three months later these had developed in each case into a swarm of brown creatures each provided with six legs and a pair of *antennæ;* each of these was a white-wax insect. Many of the excrescences also contained either a small white bag or cocoon covering a pupa, or a perfect imago in the shape of a small black beetle. This beetle is a species of *Brachytarsus*. If left undisturbed, the beetle, which is called by the Chinese the "buffalo," will, heedless of the *Cocci*, continue to burrow in the inner lining of the scale which seems to be its food ; the beetle is, in fact, parasitic on the *Coccus*. When a scale is plucked from the tree the *Cocci* escape by the orifice which is made. Two hundred miles to the north-east of the Chien-chang valley, and separated from it by a series of mountain ranges, is the town of Chia-ting, in which insect white-wax as an article of commerce is produced. The scales are gathered in the Chien-chang valley, and are made up into paper packets each weighing about 16 ounces. Sixty of these packets make a load, and are conveyed by porters from Chien-chang to Chia-ting (in former years there are said to have been as many as ten thousand of these porters). They travel only during the night, in order to avoid the high temperature of the day, which would tend to the rapid development of the insects and their escape from the scales. At the stopping-places the packets are opened out in cool places, but in spite of this each packet is found to have lost on an average an ounce in transit. A pound of scales laid down in Chia-ting costs, in years of plenty, about half-a-crown ; in bad years the price is doubled. In favourable years a pound of scales will produce four to five pounds of wax. In the plain around Chia-ting the plots of ground are thickly edged with stumps varying from 3 or 4 to 12 feet high, with numerous sprouts rising from their gnarled heads, and resembling at a distance our own pollard willows. The leaves spring in pairs from the branches, and are light green, ovate, pointed, serrated, and deciduous. The tree is said in all probability to be the *Fraxinus chinensis*, a species of ash. On the arrival of the scales from Chien-chang about the beginning of May, they are made up in small packets of from twenty to thirty scales, which are inclosed in a leaf of the wood-oil tree. The edges of the leaf are tied together with a rice straw, by which the packet is suspended close under the branches of this ash, or white-wax tree as the Chinese call it. A few rough holes are drilled in the leaf with a blunt needle, so that the insects may find their way through them to the branches. On emerging from the scales, the insects creep rapidly up to the leaves, among which they nestle for a period of thirteen days. They then descend to the branches and twigs, on which they take up their position, the females doubtless to provide for a continuation of the race by developing scales in which to deposit their eggs, and the males to excrete the substance known as white wax. This first appears as an undercoating on the sides of the boughs and twigs, and resembles sulphate of quinine, or a covering of snow. It gradually spreads over the whole branch, and attains, after three months, a thickness of about a quarter of an inch. After the lapse of a hundred days the deposit is complete, the branches are lopped off, and as much of the wax as possible is removed by hand. This is placed in an iron pot of boiling water, and the wax, on rising to the surface, is skimmed off and placed in a round mould, whence it emerges as the white-wax of commerce. Where it is found impossible to remove the wax by hand, the twigs and branches are thrown into the pot, so that this wax is darker and inferior. The insects, which have sunk to the bottom of the pot, are placed in a bag and squeezed of the last drop of the wax, and are then thrown to the pigs. The wax is used for coating the exterior of animal and vegetable tallow candles, and to give greater consistency to the tallow. It is also said to be used as a sizing for paper and cotton goods, for imparting a gloss to silk, and as a furniture polish.

Such is a brief summary of the account given by Mr. Hosie of this extraordinary industrial product. Those who wish to know more of the subject will find it in chapter xi. of the present volume, and in certain Parliamentary Reports therein referred to. In his last chapter Mr. Hosie refers to the non-Chinese races of Western and South-Western China, a subject about which very little is known, but which is of great interest to the ethnologist. In an appendix he gives exercises on the language of the Phö tribes. There is also an excellent sketch-map of South-West China to illustrate the journeys. It will thus be seen that, although the main object of Mr. Hosie's explorations was trade, the volume contains much matter of scientific interest. It is written in a simple and entertaining manner, and takes a very high rank indeed in the records of recent travel in that interesting region. Members of Her Majesty's service possess the great initial advantage of being thoroughly acquainted with the Chinese language and the Chinese people. How far this has aided Mr. Hosie in his journeys, and especially in his book, will be evident to all readers. As a sting in the critical tail, however, we venture to take exception to the transliteration of Chinese names which Mr. Hosie has adopted, and which appears to us to be growing too common amongst Chinese scholars. We fail to see the object of those eccentric combinations of letters and points, of which "Ssŭ-ch'uan," as applied to the name of the great province in which Mr. Hosie's journeys mainly lay, affords an example. If it be admitted—and we think it must be—that any combination of our letters cannot be more than an approximation to the Chinese sounds, which, by the way, vary almost indefinitely throughout the country, it would seem more reasonable to adopt a simple combination than a very elaborate and difficult one. We have always thought that, in this matter of transliteration, it is better, in order to avoid confusion and complication, to "stand on the ancient ways," however defective they may be, than to change them for others, of which the most that can be said is, that they are less defective.

THE GENUS STELLETTA.

Die Gattung Stelletta. Unter Mitwirkung von F. E. Schulze. Bearbeitet von R. von Lendenfeld. Mit 10 Tafeln. (Berlin: Georg Reimer, 1890.)

OSCAR SCHMIDT, in the year 1862, in his well-known work on the sponges of the Adriatic Sea, established the genus Stelletta for a group of tuber-like corticate sponges. Schmidt described several species from the Adriatic, and others still, in after years, from the coast of Algiers and from the Gulf of Mexico. After Schmidt, Carter took up the task of describing new forms, and he added many to the list between the years 1880 and 1886. Sollas, also, in his great work on the Tetractinellida of the *Challenger* Expedition, with a large mass of material before him, took the genus as the type of a family, and grouped beneath it a number of new genera and species.

The work that had been done, therefore, during these past eight-and-twenty years has been very considerable, and we opened this monograph on the genus Stelletta, by Dr. R. von Lendenfeld, with great expectations, thinking to find therein a masterly account of the whole group. The first and second pages give a neat though condensed account of the origin of the genus, which in the first lines is described according to the "diagnosis" of Dr. Lendenfeld, followed no doubt closely by the original "diagnosis" of Schmidt; then comes, on the next page, a statement which at once arrested our attention, to the effect that Sollas's family Stellettidæ, with its four sub-families and their genera, were all "in our sense" but species of Stelletta.

Now in a large volume lately published, under the auspices of the Royal Society of London, on the "Horny Sponges," by Dr. Lendenfeld (1889), he gives us a classification of the phylum, in which he adopts the arrangement of Sollas, as "embodying the latest results." No doubt, we reasoned, Lendenfeld's researches on the forms of this genus, the investigation of a mass of material far exceeding that which the *Challenger* brought together, and the assistance of that without any doubt most able investigator, F. E. Schulze, with whose assistance this memoir was written, had brought all this change in his views to pass. We called to mind that Dr. Lendenfeld's views of genera and species were somewhat peculiar: has he not himself written, "it is impossible to give a definition of what I mean by a genus, species, or variety" ("Horny Sponges," p. 835)? and then again, in referring to the labours of Polejaeff, he tells us he does not establish any new genera; he is of opinion that there are virtually only three genera of these horny sponges to be distinguished, and he is further of opinion that these sponges should be considered as one family. "Considering the very limited material at the disposal of Polejaeff, we (Lendenfeld) cannot be surprised that he should have arrived at an opinion so very different from that of all other writers on the subject." So that, however peculiar Lendenfeld's views might be, yet he was sure to base them on a fair quantity of material. Thus reasoning, we resumed our reading of his memoir on the genus Stelletta.

We read through a list of species "which, with greater or less certainty, we place in this genus, taking, however, no account of synonyms." This list extends over four pages, and contains "sixty-nine" forms. Immediately after the list we read: "The material which was at our service was in part collected by ourselves in the Gulf of Trieste and near Lesina, in part preserved and sent to us by Dr. Græffe. Five species, *Stelletta grubei*, *S. dorsigera*, *S. boglicii*, *S. pumex*, and *S. hispida*, were with great exactness examined."

We turned over the next page, and it was at once evident that the memoir was no monograph of the genus, but a no doubt very exact account of these five species, of which four were described long ago by Schmidt, and one, *S. hispida*, quite recently by Buccich and Marenzeller; and even of these five, though all are figured in the ten plates which accompany this memoir, yet of one, *S. pumex*, O. Schmidt, there is only a brief diagnosis given. Of the four species mentioned, most careful descriptions are given, and these are accompanied by good figures of the mega- and microsclere, and the histology of each species. The sections are very pretty, but distinctly schematic.

The memoir certainly is a useful contribution to our knowledge of the Adriatic species of the genus Stelletta, though it cannot be said to add much to that knowledge; and it is, moreover, interesting as shadowing out in some measure the lines on which our author purposes, no doubt, to write his monograph of the corticate sponges, in which he will justify his assertions as to the genera and species of Sollas. He gently reproves Marenzeller for referring, in his recent memoir on the Adriatic species of this genus, *S. grubei*, *S. boglicii*, *S. dorsigera*, and *S. anceps* to a single form, to be known as *S. grubei*, and he states that he cannot agree with him (p. 6); but seeing what he hints as to the future of the numerous species described by Sollas in the *Challenger* Report (p. 14), it would not surprise us if in the next volume on sponges, brought out, let us hope, under the auspices of the Royal Society, Dr. Lendenfeld returns to the early views of Polejaeff, and perhaps even to those of Marenzeller. There is little difficulty in seeing how this could be done—a new character added to a genus (see p. 57), and so it can be made to hug within its embraces a whole new lot of forms; repeat the process, and you likewise increase the progeny that will lay claim to be included. It does seem impossible to give a definition of what Dr. Lendenfeld means by a genus, but in time he may be able to do so himself.